

NEW ZEALAND  
DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH

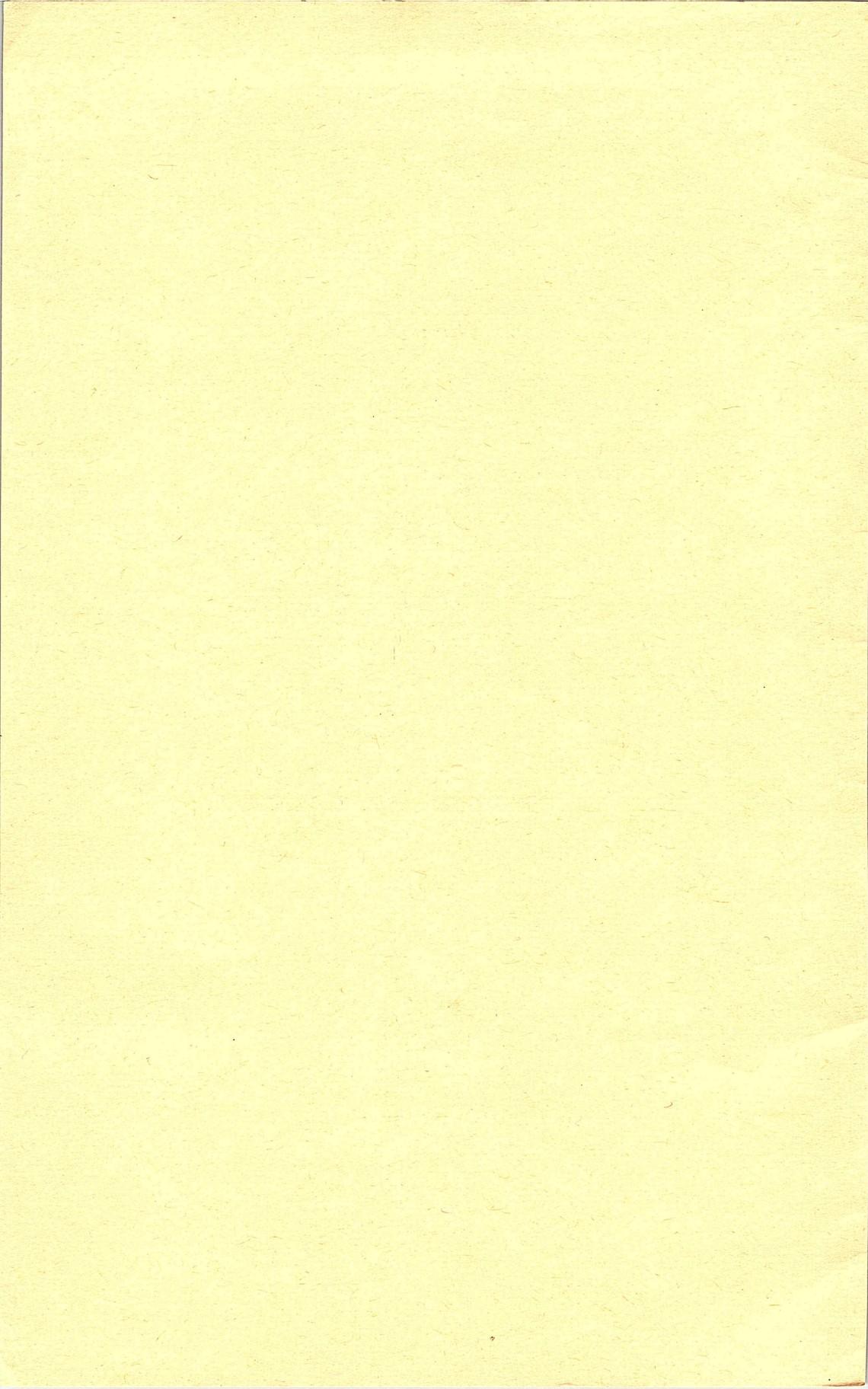
BULLETIN 132

BIBLIOGRAPHY OF  
NEW ZEALAND TUSSOCK  
GRASSLANDS

By  
HELEN M. DRUMMOND AND E. H. LEATHAM



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## P R E F A C E

THIS bibliography was begun late in 1954 by Miss H. M. Drummond, while she was Librarian of the Botany Division, Department of Scientific and Industrial Research. My part has been to recheck all the references noted by Miss Drummond, to sight most of them and to expand the list after searching the literature again. Unfortunately, I could work only intermittently at this task. My own standards for inclusion and indexing may have varied over the past two years, specially with the more general geographical or descriptive literature, and I accept responsibility for any omissions.

The general aim has been to include only literature relevant to the botanical aspects of tussock grasslands. Thus, much literature of interest to workers in the subject, dealing with the general natural history, history, development, and pre-history has had to be excluded because of the wide range of writing which could conceivably be relevant to such topics, and the difficulty of drawing a clear line between exclusion and inclusion.

The bibliography is considered complete up to the end of 1956. Any references noted in journals received this year have been included. A few unlocated theses have been included if the titles have appeared relevant but no attempt has been made to give accurate paging for theses owing to the widely varying standards employed. A number of regional geographical theses which dealt only incidentally with the vegetation have been excluded.

Owing in most instances to the type of literature on the subject, the index has presented several problems. Thus general summaries of small areas describing the vegetation, farming, and improvements, could warrant, but did not receive, many index entries in comparison with the one or two entries for the many small notes. This type of article was mainly indexed geographically. No systematic index was attempted as probably two-thirds of all the articles would come under each entry.

Grateful thanks are expressed to the Tussock Grassland Research Committee for suggesting the need for the bibliography, to Mr C. M. Smith, lately Director of the Botany Division for initiating the project and suggesting that I finish it, and to Miss L. B. Moore and Mr H. E. Connor of the Division for helpful discussion and some references.

E. H. L.

21 October 1957.

**ACLAND, J.**See MacKenzie, C. N., *et al.***ADAMS, A. F. R.**

See Walker, T. W., Adams, A. F. R., and Orchiston, H. D.

**AITKEN, M.**

- 1947 The Maniototo basin, Central Otago: from natural to cultural landscape. *N.Z. Geog.* 3: 59-74.

**AITKEN, M. N.**

- 1943 The geographic character of the Maniototo basin. 88 + 11 pp. Thesis deposited in University of Canterbury Library.

**ALLAN, H. H.**

- 1921 The vegetation of Mt. Peel, Canterbury. D.Sc. Thesis. No location known.
- 1926 Notes on the study of the open communities of high-mountain areas in New Zealand. In Tansley, A. G. & Chipp, T. F. Aims and methods in the study of vegetation. London, British Empire Vegetation Committee. pp. 366-72.  
Mainly on Mt. Peel.
- 1927 The vegetation of Mount Peel, Canterbury, N.Z. Pt. 2. The grasslands and other herbaceous communities. *Trans. N.Z. Inst.* 57: 73-89.
- 1936 An introduction to the grasses of New Zealand, N.Z. *Dep. sci. industr. Res. Bull.* 49. 159 pp.  
Mainly taxonomic.
- 1941 Nassella tussock; survey to determine most effective control. *N.Z. J. Agric.* 63: 91-5. (Also issued as *N.Z. Dep. Agric. Bull.* 187. 4 pp.)
- 1946 Tussock grassland or steppe? *N.Z. Geog.* 2: 223-34.

**ANDERSON, C. M.**

See Coop, I. E., Darling, M., and Anderson, C. M.

**ANON.**

- 1911 Grubs attacking tussock. *J. Dep. Agric. [N.Z.]* 2: 132. *Agrotis ypsilon.*
- 1913 Regrassing depleted areas. *J. Agric. [N.Z.]* 6: 596-7.  
Use of *Avena elatior* in Central Otago.
- 1955 Super doubles production on silver tussock country. *N.Z. Fert. J. No. 3:* 14-5.  
Aerial topdressing in Southland.

**ARMSTRONG, J. B.**

- 1879 A short sketch of the flora of the province of Canterbury, with catalogue of species. *Trans. N.Z. Inst.* 12: 325–53.  
See also Armstrong, J. F.

**ARMSTRONG, J. F. and J. B.**

- 1871 Notes on grasses indigenous to the province of Canterbury. *Trans. N.Z. Inst.* 4: 301–4.  
Appendix B to the Report of a Committee of the Canterbury Philosophical Institute on native and introduced grasses.

**ASTON, B. C.**

- 1913 Notes on the Phanerogamic flora of the Ruahine mountain-chain, with a list of plants observed thereon. *Trans. N.Z. Inst.* 46: 40–54.

**BALLINGER, C. E.**

- 1936 Sheep-production on the mountain country of Ashburton county. *Proc. Conf. N.Z. Grassl. Assoc.* 5: 190–7.

**BARCLAY, P. C.**

- 1950 The mode of reproduction in *Poa caespitosa*. 96 pp. (Thesis deposited in Victoria University of Wellington Library.)

**BARKER, A. P.**

- 1948 An ecological study of tussock grassland belts, Hunters Hills, South Canterbury. 102 + 44 pp. (Thesis deposited in University of Canterbury Library.)  
1953 An ecological study of tussock grassland; Hunters Hills, South Canterbury. *N.Z. Dep. sci. industr. Res. Bull.* 107. 58 pp.

**BATES, E. M.**

- 1947 Management of high country in Central Otago. *N.Z. J. Agric.* 75: 451–5.

**BATHGATE, A.**

- 1922 Changes in the fauna and flora of Otago in the last sixty years. *N.Z. J. Sci. Tech.* 4: 273–83.

**BEDDIE, A. D.**

- See Zotov, V. D., Elder, N. L., Beddie, A. D., et al.

**BEGGS, J. P.**

- 1953 Farming in New Zealand: Marlborough. *N.Z. J. Agric.* 86: 461, 463, 465, 467–70.  
Molesworth station pp. 467–9.  
See also Gibbs, H. S., and Beggs, J. P.

**BENNETTS, R. L.**

- 1957 Recent research work: sulphur. *N.Z. J. Agric.* 94: 551.  
Top dressing and oversowing with clover in Hororata-Rakaia gorge area.

**BLACKMORE, L. W.**

- 1952 Drilling seed into tussock grassland. *N.Z. J. Agric.* 84: 221–2.

**BOYCE, W. R.**

- 1939 An ecological account of tussock grassland and other plant communities of the Cashmere valley and adjacent areas on the Port Hills, Canterbury. 136 + 68 pp. (Thesis deposited in University of Canterbury Library.)

**BOYS, J. C. et al**

- 1871 Synopsis of three returned tabular circulars with information on certain introduced grasses, in answer to the Committee's inquiries. *Trans. N.Z. Inst.* 4: 304–7.  
Appendix C to the Report of a Committee of the Canterbury Philosophical Institute on native and introduced grasses.

**BROCKIE, W. B.**

- 1946 Notes on the indigenous vegetation at the head of the Maruia river and Ada Pass, with lists of species. *Trans. roy. Soc. N.Z.* 76: 255–61.

**BUCHANAN, J.**

- 1867A Botanical notes on the Kaikoura mountains and Mount Egmont. Wgtn., Govt. Printer. 16 pp.  
1867B Notes on the botany of the province of Marlborough, made during a visit there in the months of November, December, and January, 1866–67. *J. Linn. Soc. Bot.* 10: 63–8.  
1875 Sketch of the botany of Otago. *Trans. N.Z. Inst.* 1 2nd ed.: 181–212.  
Tussock grasses pp. 182–4. Originally issued in 1865 as an essay for the N.Z. exhibition, then reprinted as an Appendix to Vol. 1 of the *Trans.* in 1868.

### CALDER, G. G.

- 1938 Regrassing depleted tussock country; experiments to produce regeneration. *N.Z. J. Agric.* 57: 399–400.  
1944A Regrassing depleted areas in Central Otago: interim report on trials at Pisa Flat. *N.Z. J. Agric.* 68: 185–7, 189–92.  
1944B Studies in farm management: Otago pastoral farm. *N.Z. J. Agric.* 69: 409–11, 413, 415–6.  
Reprinted in *N.Z. Dep. Agric. Bull.* 252. 1946 Farming in New Zealand. First series. pp. 176–82.

### CALDER, J. W.

- 1937 A cytological study of some New Zealand species and varieties of *Danthonia*. *J. Linn Soc. Bot.* 51: 1–9.

### CAMPBELL, D. A.

- 1944 Tackling high country "problem land" at Molesworth. *N.Z. Soil Conserv. Rivers Control Council. Bull.* 2. 23 pp.  
1948 Preliminary aerial distribution trials with superphosphate and seed mixtures. *N.Z. J. Sci. Tech. A* 30: 65–77.  
1951 The role of grassland in soil conservation – aerial topdressing and seeding trials. *Proc. U.N. scient. Conf. Conserv. Util. Resources* 6: 548–52.  
1955 Giving wings to soil conservation. *N.Z. Soil Conserv. Rivers Control Council Bull.* 11. 71 pp.

### CANTERBURY AGRICULTURAL COLLEGE

- 1944 Tussock grassland. *Cant. Chamb. Comm. Agric. Bull.* 180. 4 pp.  
1946 Noxious weeds, the Noxious Weeds Act and the Nassella Tussock Act. *Cant. Chamb. Comm. Agric. Bull.* 209. 4 pp.

### CHAPMAN, L. P.

- 1954 Some aspects of tussock country management. *Proc. Linc. Coll. Farm. Conf.* pp. 77–83.  
Discussion pp. 83–4. Mt. Somers.  
1956 High country grasslands in New Zealand: their characteristics and problems. *Proc. Conf. N.Z. Grassl. Assoc.* 18: 105–12.

### COCKAYNE, A. H.

- 1910 The natural pastures of New Zealand. 1. The effect of burning on tussock country. *J. Dep. Agric. [N.Z.]* 1: 7–15.

## COCKAYNE, A. H.

- 1911 The spiked blue-grass of Australia; a valuable plant for denuded lands. *J. Dep. Agric. [N.Z.]* 3: 1-8.  
*Agropyron pectinatum.*
- 1915 Notes from the Canterbury College Mountain Biological Station. No. 3. Some economic considerations concerning montane tussock grassland. *Trans. N.Z. Inst.* 48: 154-65.
- 1918 Danthonia on tussock-country. *J. Agric. [N.Z.]* 16: 135.

## COCKAYNE, L.

- 1898 On the burning and reproduction of subalpine scrub and its associated plants; with special reference to Arthur's Pass district. *Trans. N.Z. Inst.* 31: 398-419 + Pl. XXXV-VII.
- 1899 A sketch of the plant geography of the Waimakariri river basin, considered chiefly from an oecological point of view. *Trans. N.Z. Inst.* 32: 95-136 + Pl. X-XIII.
- 1908 Report on a botanical survey of the Tongariro National park. *App. J. House Reps. N.Z. 1908 C. 11.* 42 pp. + map and front.  
pp. 21-32 cover the flora of the desert.
- 1910A List of plants from Franz Josef Glacier to the coast line. In N.Z. Geological Survey. A geographical report on the Franz Josef Glacier by James Mackintosh Bell . . . Wgtn. Govt. Printer. pp. 11-14.
- 1910B On the cotton plant (*Celmisia spectabilis* Hook fil.) as a weed. *J. Canterbury Agric. Past. Assoc.* 12: 37-9.
- 1911 On the peopling by plants of the subalpine river-bed of the Rakaia (Southern Alps of New Zealand). *Trans. Proc. Bot. Soc. Edin.* 24: 104-25 + Pl. 9-11.
- 1915 Notes on the plant covering of Kennedy's Bush and other scenic reserves of the Port Hills (Canterbury). *App. J. House Reps. N.Z. 1915 C. 6.* pp. 10-15.
- 1919A An economic investigation of the montane tussock-grassland of New Zealand. No. I. Introduction. *N.Z. J. Agric.* 18: 1-9.
- 1919B Ditto II. Relative palatability for sheep of the various pasture-plants. *N.Z. J. Agric.* 18: 321-31.  
A correction to p. 328 appears in *N.Z. J. Agric.* 19: 29 (1919).

## COCKAYNE, L.

- 1919c Ditto III. Notes on depletion of the grassland. *N.Z. J. Agric.* 19: 129-38.
- 1919d Ditto IV. Increase of the Californian thistle (*Cnicus arvensis*) on the Dunstan range, Central Otago. *N.Z. J. Agric.* 19: 343-6.
- 1920a Ditto V. Regeneration of grassland after depletion. *N.Z. J. Agric.* 20: 82-94.
- 1920b Ditto VI. Further details regarding the relative palatability for sheep of various pasture-plants. *N.Z. J. Agric.* 20: 209-17.
- 1920c Ditto VII. On the effect of understocking and stocking to its full capacity a certain area. *N.Z. J. Agric.* 20: 337-45.
- 1920d Ditto VIII. An experiment in Central Otago concerning the relative palatability for sheep of various pasture-plants. *N.Z. J. Agric.* 21: 176-88.
- 1920e Ditto IX. Further details regarding the Earnscleugh (Central Otago) palatability experiment. *N.Z. J. Agric.* 21: 324-34.
- 1920f Plant indicators; a new link between science and practice in agriculture and forestry. *N.Z. J. Agric.* 21: 67-73.
- 1921a Ditto X. The effect of spelling a heavily grazed pasture in Central Otago. *N.Z. J. Agric.* 22: 148-57.
- 1921b Ditto XI. The grassland of the Humboldt mountains established since the burning of their forest covering. *N.Z. J. Agric.* 23: 137-47.
- 1922a Ditto XII. The regrassing experiments in Central Otago. Part I. An account of the depleted area in relation to the experiments. *N.Z. J. Agric.* 24: 321-34.
- 1922b Ditto XII. The regrassing experiments in Central Otago. Part II. Objects, principles, and methods. *N.Z. J. Agric.* 25: 1-11.
- 1922c Ditto XII. The regrassing experiments in Central Otago. Part III. Results up to May, 1922. *N.Z. J. Agric.* 25: 129-44.
- 1926 Tussock grassland investigation in New Zealand. In Tansley, A. G. and Chipp, T. F. Aims and methods in the study of vegetative land. London, British Empire vegetation committee. pp. 349-65.
- 1927a The vegetation and flora of the Canterbury Plain. In Philosophical Institute of Canterbury. Natural History of Canterbury. Christchurch, Simpson & Williams. pp. 115-44.

### **COCKAYNE, L.**

- 1927B New Zealand plants and their story. 3rd ed. Wgtn. Govt. Printer, 1927. 271 pp. *N.Z. Bd. Sci. Art. Manual* 6.  
Ch. 6 The story of the grasslands.  
Ch. 7 The flora and vegetation of the high mountains.  
(1st ed. 1910 not pub. by Board of Science & Art. 2nd ed. as its Manual 1.)
- 1928 The vegetation of New Zealand. 2nd ed. Leipzig, Engelmann. (Der Vegetation der Erde. XIV.)  
Mainly pp. 210–20, 284–318, 361–7. 1st ed. 1921.

### **COCKAYNE, L. and CALDER, J. W.**

- 1932 The present vegetation of Arthur's Pass (New Zealand) as compared with that of thirty-four years ago. *J. Ecol.* 20: 270–83.

### **COCKAYNE, L. and FOWERAKER, C. E.**

- 1915 Notes from the Canterbury College Mountain Biological Station. No. 4. The principal plant associations in the immediate vicinity of the station. *Trans. N.Z. Inst.* 48: 166–86.

### **COCKAYNE, L. and SLEDGE, W. A.**

- 1932 A study of the changes following the removal of sub-alpine forest in the vicinity of Arthur's Pass, Southern Alps, New Zealand. *J. Linn. Soc. Bot.* 49: 115–31 + Pl. 20–1.

### **COCKAYNE, L. and TEICHELMANN, E.**

- 1930 The glacial scenic reserves of Westland. *App. J. House Reps. N.Z.* 1930 C. 6. App. C. pp. 8–18.

### **COCKAYNE, L., SIMPSON, G., and THOMSON, J. S.**

- 1932A Some New Zealand indigenous-induced weeds and indigenous-induced modified and mixed plant-communities. *J. Linn. Soc. Bot.* 49: 13–45 + Pl. 3–7.
- 1932B Vegetation of South Island, New Zealand. *Vegetationsbilder* 22 (5/6) 17 pp. + Tafel 25–36 and descriptions.  
Deals mainly with the mountain vegetation. pp. 10–1, 14–6 & Taf. 30–2 most relevant.

### **COCKAYNE, L.**

See also Speight, R., Cockayne, L., and Laing, R. M.

**COMMISSION appointed to inquire into and report upon Southern pastoral lands.**

1920 Report. *App. J. House Reps. N.Z. 1920 C. 15.* 24 pp.

**COMMITTEE of inquiry [into the] maintenance of vegetative cover in New Zealand, with special reference to land erosion.**

1939 Report. *N.Z. Dep. sci. industr. Res. Bull. 77.* 51 pp.

**CONNOR, H. E.**

- 1949 A study of some New Zealand forms of *Agropyron scabrum* (R. Br.) Beauvois. (Thesis deposited in Victoria University of Wellington Library.) 124 pp.
- 1950 The agricultural significance of the study of New Zealand blue-grass, *Agropyron scabrum*. *Proc. Conf. N.Z. Grassl. Assoc. 12:* 95–100.
- 1954 Studies in New Zealand *Agropyron*. Parts I and II. *N.Z. J. Sci. Tech. B 35:* 315–43.
- 1956 Interspecific hybrids in New Zealand *Agropyron*. *Evolution 10:* 415–20.
- 1957 Breeding systems in some New Zealand grasses. *N.Z. J. Sci. Tech. A 38:* 742–50.  
12 species from Tribes Festuca Hordeae, Aveneae and Agrostideae.

**CONNOR, H. E. and COOK, A. B.**

- 1952 Note on the breeding system of *Dichelachne crinita* (Linn. f.) Hook f. in New Zealand. *N.Z. J. Sci. Tech. A 34:* 369–71.
- 1955 The breeding system of the New Zealand fescue-tussock *Festuca novae-zelandiae* (Hack) Cockayne. *N.Z. J. Sci. Tech. A 37:* 103–5.

**COOK, A. B.**

See Connor, H. E. and Cook, A. B.

**COOP, I. E.**

- 1952 Nutritive value of some high-country pastures. *Proc. Conf. N.Z. Grassl. Assoc. 14:* 109–13.  
In Canterbury.

**COOP, I. E., DARLING, M., and ANDERSON, C. M.**

- 1953 Chemical composition of some tussock grassland pastures. *N.Z. J. Sci. Tech. A 34:* 507–20.  
In Canterbury.

**CORBETT, E. B.**

- 1952 The lesson of the Molesworth-Tarndale runs. N.Z.  
*J. Agric.* 84: 354-5.  
Ministerial statement.

**CRAWFORD, W. R.**

- 1956 Aerial top-dressing and oversowing bring hill country improvement in Marlborough. N.Z. *J. Agric.* 92: 121.

**CUMBERLAND, K. B.**

- 1944A Soil erosion in New Zealand; a geographic reconnaissance. Wgtn. Soil conservation and rivers control council. 227 pp.  
Main relevant pages pp. 64-84, 90, 94, 102, 118-21, 154-9, 170-3.  
2nd ed. Whitcombe & Tombs, 1947 has only a few additional entries in the bibliography.
- 1944B High-country "run"; the geography of extensive pastoralism in New Zealand. *Econ. geog.* 20: 204-20.  
Grassmere Cora Lynn.
- 1944C Contrasting regional morphology of soil erosion in New Zealand. *Geog. Rev.* 34: 77-95.  
pp. 86-95 deal with South Canterbury and Central Otago.
- 1945A Burning tussock grassland: a geographic survey. N.Z. *Geog.* 1: 149-64.
- 1945B The land of New Zealand with special reference to soil erosion and particularly to Canterbury. (D.Sc. Thesis. No location known.)

**DARLING, M.**

- 1951 A study of the nutritive value of untopdressed hill country pastures. 93 + 3 pp. (Thesis deposited in Canterbury Agricultural College Library.)  
Incl. high country.  
See also Coop, I. E., Darling, M., and Anderson, C. M.

**DEANE, J.**

- 1946 The Loburn run, North Canterbury. N.Z. *Geog.* 2: 345-54.

**DICK, R. D.**

- 1940 Observations on insect-life in relation to tussock-grassland deterioration. Preliminary report. N.Z. *J. Sci. Tech. A* 22: 19-29.

**DICK, R. D.**

- 1952 The changing tussock grasslands. *Proc. Conf. N.Z. Grassl. Assoc.* 14: 114-22.  
1956 Sixty years after a mountain beech forest fire. *N.Z. J. For.* 7 (3): 104-8.  
Waimakariri Bealey basin.

**di MENNA, M.**

See Thornton, R. H., Stout, J. D., and di Menna, M.

**DINGWALL, A. R.**

- 1954A Weed control of South Island hill country. *Proc. Linc. Coll. Farm. Conf.* pp. 84-92.  
Discussion p. 93. Canterbury.  
1954B Sweet brier control trials. *Proc. N.Z. Weed Control Conf.* 7: 82-5.  
1955 High country tussock grassland improvement in Canterbury. *N.Z. J. Agric.* 91: 554-5.  
1956A Tussock grassland research in the Broken River area. *N.Z. J. Agric.* 93: 277-9, 281, 283.  
1956B Sweet briar control. *Proc. N.Z. Weed Control Conf.* 9: 13-7.  
Discussion p. 18.

**DUNBAR, G.**

- 1950 Comparative studies of germination of seed, and the emergence and development of some native and introduced plant species; with special reference to the revegetation of depleted tussock grasslands. 169 pp. + App. (Thesis deposited in Canterbury Agricultural College Library.)  
See also Riney, T. A. and Dunbar, G. A.

**DUNCAN, P. D.**

- 1948 Sheep farming in the high country of the South Island of New Zealand. (Thesis, no location known.)

**EDIE, H. K.**

- 1953 Development of tussock grassland in Waihemo county. *N.Z. J. Agric.* 87: 458-9, 461, 463.

**ELDER, N. L.**

- 1938 See Zotov, V. D., Elder, N. L., Beddie, A. D. *et al.*

**FAITHFUL, W.**

- 1950 A Southland tussock run. *N.Z. J. Agric.* 81: 347-9,  
351, 353, 355-6.  
See also Saxby, S. H. and Faithful, W.

**FERRAR, H. T.**

- 1929 The soils of irrigation areas in Otago Central. *N.Z. geol. Surv. Bull. n.s.* 33. 42 pp. + maps.  
Vegetation p. 14.

**FISHER, F. J. F.**

- 1948 The scree plants of Mount Bailey; some observations made in the Craigieburn range, North Canterbury. 154 pp. (Thesis deposited in University of Canterbury Library.)  
1952 Observations on the vegetation of screes in Canterbury, New Zealand. *J. Ecol.* 40: 156-67.

**OWERAKER, C. E.**

- 1916 Notes from the Canterbury College Mountain Biological Station. Cass. No. 5. The mat-plants, cushion-plants, and allied forms of the Cass river bed. Eastern botanical district, New Zealand. *Trans. N.Z. Inst.* 49: 1-45.  
See also Cockayne, L. and Foweraker, C. E.

**GARNIER, B. J. (ed.)**

- 1948 The face of Otago. Dunedin, Otago centennial historical publications. 82 pp.

**GARRETT, H. E.**

- 1956 Present and future farm production in North Canterbury. *Linc. Coll. Tech. Pub.* 13. 43 pp. + map.  
pp. 8-19 deal with tussock grassland.

**GARVIE, A.**

- 1859 Report on the reconnaissance survey of the South-Eastern districts of the province of Otago executed during the months of October and November, also February, March and part of April 1857-8. *Otago Prov. Govt. Gaz.* 3: 276-82.

**GIBBS, H. S.**

- 1945 Tunnel-gully erosion on the Wither Hills, Marlborough. *N.Z. J. Sci. Tech. A* 27: 135-46.

**GIBBS, H. S. and BEGGS, J. P.**

- 1953 Soils and agriculture of Awatere, Kaikoura, and part of Marlborough Counties. *N.Z. soil Bur. Bull.* 9. 55 pp. + map.  
p. 10 Vegetation.

**GIBBS, H. S. and RAESIDE, J. D. et al.**

- 1945 Soil erosion in the high country of the South Island. *N.Z. Dep. sci. industr. Res. Bull.* 92. 72 pp.  
Also numbered as *Soil Survey Pub.* 10.

**GOODALL, D. W.**

- 1953 Point quadrat methods for the analysis of vegetation; the treatment of data for tussock grasses. *Aust. J. Bot.* 1: 457-61.  
*Poa caespitosa.*

**GOURLAY, H. W.**

See Laing, R. M. and Gourlay, H. W.

**GRADWELL, M. W.**

- 1954 Soil frost studies at a high country station - I. N.Z. *J. Sci. Tech. B* 36: 240-57.  
At Molesworth Station, Marlborough.  
1955 Soil frost studies at a high-country station - II. N.Z. *J. Sci. Tech. B* 37: 267-75.  
1957 Patterned ground at a high-country station. N.Z. *J. Sci. Tech. B* 38: 793-806.  
Soil frost at Molesworth.

**GREGOR, J. W.**

- 1957 Pastoral utilisation of natural hill vegetation: note on the tussock grasslands of New Zealand. *Rep. Scot. Plant Breed Stat.* 1957. pp. 37-42 + col. plate.

**GREIG, D. M.**

- 1954 Increasing production on marginal lands; the Marginal Lands Act. *Proc. Linc. Coll. Farm. Conf.* pp. 69-74.  
Discussion pp. 74-7.

**GUTHRIE-SMITH, H.**

- 1930 Grassland evolution at Tutira; turfs of fifty years. *N.Z. J. Agric.* 40: 84-92.  
1953 Tutira; the story of a New Zealand sheep station. 3rd ed. Edinburgh, Blackwood.  
pp. 104, 318-9 deal with tussock grasses.

**HAIR, J. B.**

- 1956 Subsexual reproduction in *Agropyron*. *Heredity* 10: 129–60.

**HEALY, A. J.**

- 1942 Ecology and economics of Nassella tussock (*Nassella trichotoma*) in North Canterbury and Marlborough, New Zealand. (Thesis, held by author at Botany Divisions, Department of Scientific and Industrial Research.)
- 1945 Nassella tussock (*Nassella trichotoma* (Nees.) Hack.) ; field studies and their agricultural significance. *N.Z. Dep. sci. industr. Res. Bull.* 91. 90 pp.

**HECTOR, J.**

- 1875 On the geographical botany of New Zealand. Explanatory of a series of essays by Sir David Monro and Messrs Travers and Buchanan. *Trans. N.Z. Inst.* 1 2nd ed.: 157–60 + Pl. 5.  
(Treats a section through Otago province.)  
Originally issued in 1865 as an essay for the N.Z. exhibition, then reprinted as an Appendix to Vol. 1 of the *Trans.* in 1868.

**HERCUS, J. M.**

- 1954A Sowing depleted tussock land. *N.Z. J. Agric.* 89: 263.  
Note on regrassing in the MacKenzie country.
- 1954B Recent research work; tussock grassland. *N.Z. J. Agric.* 89: 397.  
Notes on regrassing in Central Otago.
- 1954C Tussock grasslands in the South Island of New Zealand. *Proc. Conf. N.Z. Grassl. Assoc.* 16: 166–75.
- 1956 Tussock grassland problems under investigation in Zealand. *Proc. Conf. N.Z. Grassl. Assoc.* 18: 126–34.  
Discussion pp. 134–5.

**HILGENDORF, F. W.**

- 1917 Notes from the Canterbury College mountain biological station, Cass. No. 6. The insect life. *Trans. N.Z. Inst.* 50: 135–44.  
Tussock grassland pp. 139–40.
- 1935 The grasslands of the South Island of New Zealand; an ecological survey. *N.Z. Dep. sci. industr. Res. Bull.* 47. 24 pp. and map.

**HOLLOWAY, J. E.**

See Logan, M. C. and Holloway, J. E.

**HOLLOWAY, J. T.**

- 1955 Forestry in relation to tussock grasslands. *Proc. N.Z. ecol. Soc.* 3: 16-7.  
General discussion pp. 17-20.

**HYDE, E. O. C.**

- 1930 Preparatory work for a revision of a section of the Genus *Danthonia* D.C. (Thesis, no location known.)

**IRELAND, R. K.**

- 1952 Tussock grassland: marginal land. *Proc. Conf. N.Z. Grassl. Assoc.* 14: 138-44.

**JOBBERNS, G.**

- 1949 South Island (New Zealand) high country. *Proc. Aust. N.Z. Assoc. Adv. Sci.* 27: 154-9.

**JOHNSON, R. M. D.**

- 1953 Cattle on tussock country. *Proc. Linc. Coll. Farm. Conf.* pp. 28-30.

**KEAN, R. I.**

- 1951 Animal influences on forest and high country soils.  
2. Estimation of the effects of deer and opossums in high country. *N.Z. Sci. Rev.* 9: 146-9.

**KELSEY, J. M.**

- 1955 Insects attacking tussock. *Proc. N.Z. ecol. Soc.* 3: 14-5.  
General discussion pp. 17-20.  
1957 Insects attacking tussock. *N.Z. J. Sci. Tech. A* 38: 638-43.  
Slight but unacknowledged expansion of 1955 paper.

**KERR, C. J.**

- 1950 The pastoral areas of the South Canterbury catchment district. Parts I and II. Timaru, South Canterbury Catchment Board. 36 pp. + map.

**KIRK, T.**

- 1876 Notes on the economic properties of certain native grasses. *Trans. N.Z. Inst.* 9: 494-502.

**LAING, R. M.**

- 1913 On a subalpine element in the flora of Banks Peninsula. *Trans. N.Z. Inst.* 46: 56-9.  
*Danthonia flavescens* common.

**LAING, R. M.**

- 1918 The vegetation of Banks Peninsula, with a list of species (flowering plants and ferns). *Trans. N.Z. Inst.* 51: 355–408.
- 1927 The botany of Banks Peninsula (flowering plants). In Philosophical Institute of Canterbury. Natural History of Canterbury. Christchurch, Simpson & Williams. pp. 107–14.

**LAING, R. M. and GOURLAY, H. W.**

- 1934 Vegetation of the Bealey river basin: supplement to list of species (1929) with notes. *Trans. roy. Soc. N.Z.* 64: 1–10 + Pl. 1.

**LAING, R. M. and OLIVER, W. R. B.**

- 1929 Vegetation of the upper Bealey river basin, with a list of species. *Trans. N.Z. Inst.* 59: 715–30.

**LAING, R. M.**

See also Speight, R., Cockayne, L., and Laing, R. M.

**LEONARD, W. E.**

- 1956 Nassella tussock. *Proc. N.Z. Weed Control Conf.* 9: 29–34.  
Discussion p. 35.

**LEVY, E. B.**

- 1928 The grasslands of New Zealand; grasses and clovers for hill country. 7. *Danthonia pilosa*. *N.Z. J. Agric.* 36: 297–315.

**LOBB, W. R.**

- 1953 Oversowing and topdressing North Otago hill country. *N.Z. J. Agric.* 86: 141, 143–5.  
1957 Zig-zag clover may be of value in low-rainfall areas. *N.Z. J. Agric.* 94: 183–4.  
*Trifolium medium* in North Otago.

**LOBB, W. R. and REYNOLDS, D. G.**

- 1956 Further investigations into use of sulphur in North Otago. *N.Z. J. Agric.* 92: 17–19, 21, 23, 25.

**LOGAN, M. C. and HOLLOWAY, J. E.**

- 1934 Plant succession in Oreti river sand dunes. *Trans. roy. Soc. N.Z.* 64: 122–39.

Incl. *Poa caespitosa*.

**LOWE, A. D.**

- 1954 A note on the death of *Nassella* tussock, *Nassella Trichotoma* (Nees.) Hack. due to the depredations of *Chlorochiton* sp. *N.Z. Ent.* 1 (4): 15–6.  
At Waiau.

**LUNN, W. A.**

- 1951 Regrassing experiments on depleted country in Central Otago. *N.Z. J. Agric.* 83: 363, 365, 367–8.

**McCASKILL, L. W.**

- 1956 The indigenous grasslands of New Zealand, and their plants of horticultural importance. *N.Z. Sci. Rev.* 14: 3–7.  
Banks memorial lecture, 1955.

**McCULLOCH, W. J.**

- 1917 The depleted lands of the South Island central regions. *J. Agric. [N.Z.]* 14: 293–302.  
Central Otago.

**MacFARLANE, A. A.**

See McGregor, J. N. *et al.*

**McGILLIVRAY, R.**

- 1929 The MacKenzie country grasslands; progress of natural regeneration and experimental sowings. *N.Z. J. Agric.* 39: 73–8.  
1934 Pastoral lands of Canterbury and Marlborough and their management. *Papers read. Conf. N.Z. Grassl. Assoc.* 3. Paper 14. 6 pp.

**McGREGOR, J. N., WHALAN, W. J., MacFARLANE, A. A., and SCHERP, E.**

- 1957 Aerial farming in the South Island: I. Farmers' experiences. *Proc. Linc. Coll. Farm. Conf.* 7: 55–68.  
Discussion pp. 69–70.

**McGREGOR, W. J. A.**

- 1937 Tussock grassland farming in the South Island. *Proc. Conf. N.Z. Grassl. Assoc.* 6: 6–9.  
Discussion pp. 14–21.

**McINDOE, K. G.**

- 1928 Ecological study of the vegetation of Cromwell district ... (Thesis, no location known.)
- 1932 An ecological study of the vegetation of the Cromwell district, with special reference to root habit. *Trans. N.Z. Inst.* 62: 230–66 + Figs. 9–24.

**MacKENZIE, C. N., ACLAND, J., and ROBERTS, J. E. D.**

- 1957 Farmers' experiences with beef cattle. *Proc. Linc. Coll. Farm. Conf.* 7: 42–52.  
Discussion pp. 52–4. Covers Canterbury and Otago.

**McKERROW, J.**

- 1862 Reconnaissance survey of the Wanaka and Hawea lake district. *Otago Prov. Govt. Gaz.* 5: 11–8.

**MacLEAN, S. M.**

- 1956 Recent research work; tussock country. *N.Z. J. Agric.* 92: 567.  
Introduction of clovers.
- 1957 Recent research work; tussock grassland. *N.Z. J. Agric.* 95: 19.  
Top-dressing and oversowing.

**MCLEOD, D.**

- 1951 Maintenance of stock numbers in hill country and the supply of surplus stock. *Proc. Linc. Coll. Farm. Conf.* pp. 14–19.  
Discussion pp. 19–20. At Cass.

**MacPHERSON, A.**

- 1910A The natural pastures of New Zealand. 2. Condition of the MacKenzie plain and runs in Central Otago. *J. Dep. Agric. [N.Z.]* 1: 15–7.
- 1910B Regrassing experiments; report on grassing denuded country, MacKenzie plains and Central Otago. *J. Dep. Agric. [N.Z.]* 1: 477–9.
- 1911 Revegetation of depleted country: experiments in MacKenzie country. *J. Dep. Agric. [N.Z.]* 3: 391–3.
- 1912A Revegetating experiments on depleted country; Sawdon run, MacKenzie country. *J. Dep. Agric. [N.Z.]* 4: 21–2.
- 1912B Revegetating experiments. Tests in connexion with depleted country, Central Otago. *J. Dep. Agric. [N.Z.]* 4: 308–11.

**MacPHERSON, A.**

- 1913 Experimental work in the South Island. *J. Dep. Agric. [N.Z.]* 7: 387-91.  
pp. 390-1 regrassing in Central Otago and Marlborough.
- 1920 Pasture in the MacKenzie country. *N.Z. J. Agric.* 20: 288.

**MADDEN, E. A.**

- 1940 The grasslands of the North Island of New Zealand.  
*N.Z. Dep. sci. industr. Res. Bull.* 79. 45 pp.  
Type 13. pp. 35 and 37 cover tussock grassland.

**MALCOLM, N. A.**

- 1925 Montane tussock grassland, with special reference to  
the effect of spelling. 125 pp. (Thesis deposited in  
University of Canterbury Library.)

**MARK, A. F.**

- 1954 A study of the vegetation of the Maungatua Range.  
142 pp. (Thesis deposited in University of Otago  
Library.)  
Part III. pp. 50-84 Grassland, shrubland, and herb-mow.
- 1955 Grassland and shrubland on Maungatua, Otago.  
*N.Z. J. Sci. Tech. A* 37: 349-66.  
See also Wardle, P. and Mark, A. F.

**MARSHALL, C. S.**

- 1937 The place of permanent pasture in back country  
sheep farming. *Proc. Conf. N.Z. Grassl. Assoc.* 6:  
10-13.  
Discussion pp. 14-21.

**MARSHALL, P.**

- 1918 The geology of the Tuapeka district, Central Otago  
division. *N.Z. geol. Surv. Bull. n.s.* 19. 119 pp. +  
map.  
Vegetation pp. 5-6.

**MARTIN, W.**

- 1924 Native plants of Dunedin and surrounding district.  
Dunedin. *Otago Daily Times.* 37 pp. (Reprinted  
from *Otago Daily Times.*)  
Grasses pp. 33-4.
- 1932 The vegetation of Marlborough. Blenheim. *Marl-*  
*borough Express.* 46 + 4 pp. (Reprinted from *Marl-*  
*borough Express.*)

**MARTIN, W.**

- 1935 Species of *Celmisia* indigenous to Marlborough, with descriptions of new species and varieties. *Trans. roy. Soc. N.Z.* 65: 169–85.
- 1938 Notes on the indigenous flora of Marlborough (New Zealand) with special reference to plant distribution. *Trans. roy. Soc. N.Z.* 67: 414–25.  
p. 421 *Danthonia Raoulii* var. *Cheesmanii* noted as abundant.

**MASON, R.**

See Poole, A. L., Mason, R., Oliver, W. R. B., and Zotov, V. D.

**MATTHEWS, L. J.**

- 1956A Chemical methods of weed control. *N.Z. Dep. Agric. Bull.* 329. 100 pp.  
pp. 20, 26, 78–9, 95–6 deal with *Nassella*.  
1956B Recent research work; dangerous weeds. *N.Z. J. Agric.* 93: 226–7.  
Control of *Nassella* with TCA and Dalapon, with subsequent oversowing of clover.

**MILLER, F. L.**

- 1956 Erosion, soil conservation and land capability classification of Upper Shotover, *In Otago Catchment Board. Bull. 1. Shotover river survey* pp. 47–64.  
Discussion pp. 65–71.

**MILNE, R. A.**

- 1954 *Nassella* tussock control. *Proc. N.Z. Weed Control Conf.* 7: 75–85.

**MONRO, D.**

- 1875 On the leading features of the geographical botany of the provinces of Nelson and Marlborough, New Zealand. *Trans. N.Z. Inst.* 1. 2nd ed.: 161–74.  
Originally issued in 1865 as an essay for the N.Z. exhibition, then reprinted as an Appendix to Vol. 1 of the *Trans.* in 1868.

**MOORE, L. B.**

- 1950 Mat plants of the genus *Raoulia* as weeds in pastoral land. *Proc. Int. Bot. Congr.* 7: 677.  
Abstract.

### **MOORE, L. B.**

- 1954 Some *Rumex acetosella* communities in New Zealand. *Vegetatio* 5-6: 268-78.  
(Molesworth.)
- 1955 The plants of tussock grassland. *Proc. N.Z. ecol. Soc.* 3: 7-8.  
General discussion pp. 17-20.

### **MORRISON, W. G.**

- 1919 Some proposals with regard to natural afforestation in a New Zealand mountain area. *N.Z. J. Sci. Tech.* 2: 339-49.  
Hanmer.
- 1919-20 Natural afforestation in a New Zealand mountain area; some proposals ... *Aust. For. J.* 2: 380-4,  
3: 23-5, 55-8.  
On Hanmer plains.

### **MOSS, G. R.**

- 1956 The Waiouru tussock lands. *N.Z. J. Agric.* 93: 3-5,  
7, 9-10.

### **MOUAT, A. H. and RAESIDE, J. D.**

- 1951 Farming in New Zealand: Waitaki county. *N.Z. J. Agric.* 83: 345, 347, 349, 351-2, 453, 455-7, 459,  
461-2.

### **NEW ZEALAND STATUTES**

- 1955 Forest and Rural Fires Act. *Statutes of N.Z.* pp. 345-84. (1955 No. 44.)
- 1948 Land Act. *Statutes of N.Z.* pp. 629-757. (1948 No. 64.)  
See also five following Amendment Acts and many other minor amendments. S.s. 62-9 cover Tenure, 99-108 cover good husbandry and burning.
- 1950 Land Amendment Act. *Statutes of N.Z.* pp. 1100-14. (1950 No. 96.)
- 1951 Land Amendment Act. *Statutes of N.Z.* pp. 328-39. (1951 No. 60.)
- 1952 Land Amendment Act. *Statutes of N.Z.* pp. 298-9. (1952 No. 46.)
- 1953 Land Amendment Act. *Statutes of N.Z.* pp. 643-55. (1953 No. 67.)
- 1954 Land Amendment Act. *Statutes of N.Z.* pp. 143-7. (1954 No. 37.)

## NEW ZEALAND STATUTES

- 1950 Marginal Lands Act. *Statutes of N.Z.* pp. 865-77.  
(1950 No. 76.)  
Minor amendments in 1951 No. 79 and 1953 No. 115.
- 1946 Nassella Tussock Act. *Statutes of N.Z.* pp. 6-46.  
(1946 No. 2.)  
See also two following Amendment Acts and minor amendments in 1950 No. 65, 1951 Nos. 79 and 81, 1954 No. 49.
- 1948 Nassella Tussock Amendment Act. *Statutes of N.Z.* pp. 261-4. (1948 No. 30.)
- 1953 Nassella Tussock Amendment Act, *Statutes of N.Z.* pp. 54-5. (1953 No. 15.)
- 1950 Noxious Weeds Act. *Statutes of N.Z.* pp. 776-96.  
(1950 No. 62.)  
Includes Nassella.  
Minor amendments in 1954 No. 75 and Stat. regulations 1952 No. 67, 1953 No. 68, 1954 No. 91.

## NORTH CANTERBURY CATCHMENT BOARD

- 1945 Burning practice on tussock grassland. *Cant. Chamb. Comm. Agric. Bull.* 189. 4 pp.

## NORTON, A. C.

- 1951 A survey of land utilisation and farm management in the MacKenzie country. 142 pp. (Thesis deposited in Canterbury Agricultural College Library.)

## NURSE, F. R. B.

- 1940 The ecology of *Celmisia spectabilis*, with short notes on the anatomy of *Celmisia* species. 112 and 62 pp.  
(Thesis deposited in University of Canterbury Library.)

## OLDRIDGE, D. M.

- 1922 Plant succession in shingle fans. 186 pp. (Thesis deposited in University of Canterbury Library.)  
Craigieburn Mountains and Cass Valley.

## OLIVER, W. R. B.

- See Laing, R. M., and Oliver, W. R. B. and Poole, A. L., Mason, R., Oliver, W. R. B., and Zotov, V. D.

## ORCHISTON, H. D.

- See Walker, T. W., Adams, A. F. R., and Orchiston, H. D.

## OTAGO CATCHMENT BOARD

- 1956 Shotover river survey; Upper catchment. Dunedin.  
72 pp. + 21 plates + 5 maps in pocket. (*Its Bull.*  
1.)

Covers the geology, pedology, botany, hydrology, erosion  
and land capability of the area. See also entries under  
Wardle and Miller.

## PACKARD, W. P.

- 1946 Lake Coleridge catchment; an examination of the  
surface cover past and present. 75 + 13 pp. plus 1  
vol. of maps. (Thesis deposited in University of  
Canterbury Geog. Dept. Library.)  
1947 Lake Coleridge catchment; a geographic survey of  
its problems. *N.Z. Geog.* 3: 19-40.

## PARK, J.

- 1921 Geology and mineral resources of Western South-  
land. *N.Z. geol. Surv. Bull. n.s.* 23. 88 pp.  
Vegetation pp. 7-11.

## PARLANE, B. I.

- 1925 Ecological study of the Cass Valley, Canterbury.  
(Thesis, no location known.)

## PEGG, E. J.

- 1913 An ecological study of some New Zealand sand-dune  
plants. *Trans. N.Z. Inst.* 46: 150-77.  
Incl. *Poa caespitosa*.

## PETRIE, D.

- 1880 A visit to Stewart Island, with notes on its flora.  
*Trans. N.Z. Inst.* 13: 323-32.  
1883 Some effects of the rabbit pest. *N.Z. J. Sci.* 1: 412-4.  
1895 List of the flowering plants indigenous to Otago,  
with indications of their distribution and range in  
altitude. *Trans. N.Z. Inst.* 28: 540-91.  
1912 Report on the grass-denuded lands of Central Otago.  
*N.Z. Dep. Agric. Ind. Comm. Bull. n.s.* 23. 16 pp.

## PHILLIPS TURNER, E.

See Turner, E. P.

## POOLE, A. L.

- 1951 Flora of Caswell and George Sounds district. *Trans.*  
*roy. Soc. N.Z.* 79: 62-83.

**POOLE, A. L., MASON, R., OLIVER, W. R. B., and ZOTOV, V. D.**

- 1949 Vegetation of the Expedition area. In Poole, A. L., comp. Preliminary reports of the New Zealand-American Fiordland expedition; investigations in Fiordland, New Zealand. *N.Z. Dep. sci. industr. Res. Bull.* 103. pp. 51-7.

**POPPELWELL, D. L.**

- 1911 Notes on the plant covering of Codfish Island and the Rugged Islands. *Trans. N.Z. Inst.* 44: 76-85. Off Stewart Is. *Poa caespitosa* common.
- 1912 Notes of a botanical excursion to northern portion of the Eyre mountains. *Trans. N.Z. Inst.* 45: 288-93.
- 1913 Notes on the botany of Routeburn Valley and Lake Harris saddle. *Trans. N.Z. Inst.* 46: 22-9.
- 1914 Notes on the plant covering of the Garvie mountains, with a list of species. *Trans. N.Z. Inst.* 47: 120-42.
- 1916 Botanical results of an excursion to the upper Makarora Valley and the Haast Pass, supported by a list of the species observed. *Trans. N.Z. Inst.* 49: 161-6.
- 1919A Notes on the indigenous vegetation of the north-eastern portion of the Hokonui Hills, with a list of species. *Trans. N.Z. Inst.* 52: 239-47.
- 1919B Notes on the indigenous vegetation of Ben Lomond, with a list of species. *Trans. N.Z. Inst.* 52: 248-52.

**RAESIDE, J. D.**

- 1953 A note on the regeneration of tussock-grassland. *N.Z. Sci. Rev.* 11: 154-5.
- 1955 Some soils of the tussock grasslands. *Proc. N.Z. ecol. Soc.* 3: 9-10.  
General discussion pp. 17-20.  
See also Gibbs, H. S., Raeside, J. D., et. al. and Mouat, A. H., and Raeside, J. D.

**RELPH, D. H.**

- 1953 Plant geography of Castle Hill basin. 83 + 14 + 4 pp. (Thesis deposited in University of Canterbury Library.)
- 1957 Vegetation of the Castle Hill basin. *N.Z. Geog.* 13: 41-55.

**REYNOLDS, D. G.**

- 1957 Improvement of high-country tussock land in the Omarama district. *N.Z. J. Agric.* 94: 132-3.  
See also Lobb, W. R., and Reynolds, D. G.

**RINEY, T.**

- 1956 A zoecological approach to the study of ecosystems that include tussock grassland and browsing and grazing animals. *N.Z. J. Sci. Tech. B* 37: 455-72.  
Earlier published in shortened form with slightly different title in *Proc. N.Z. ecol. Soc.* 3: 12-4, 1955. General discussion pp. 17-20.

**RINEY, T. A. and DUNBAR, G. A.**

- 1956 Criteria for determining status and trend of high country grazing lands in the South Island of New Zealand. Wgtn., Soil Conservation and Rivers Control Council, 32 pp.

**ROBERTS, J. E. D.**

See MacKenzie, C. N., *et al.*

**ROBERTS, P. R.**

- 1954 An ecological study of certain rocks on the Port Hills, Canterbury. 93 + 44 + 15 pp. (Thesis deposited in University of Canterbury Library.)

**ROYAL COMMISSION to inquire into and report upon the sheep-farming industry in New Zealand.**

- 1949 Report. *App. J. House Reps. N.Z. 1949. H. 46A.* 220 pp.  
Tussock grassland mainly pp. 98-105.

**SAXBY, S. H.**

- 1940 Introduction of clover into tussock country; trial laid down in Central Otago. *N.Z. J. Agric.* 61: 183-5, 187-8.  
1944 Grasses and clovers in New Zealand. *N.Z. Dep. Agric. Bull.* 210. 78 pp.  
pp. 50-5 covers grasses which thrive on third class soils of low fertility and low moisture content.  
1950 Tussock grassland associations. *Proc. Conf. N.Z. Grassl. Assoc.* 12: 44-52.  
1951 [Notes on methods of sowing grasses in, and spelling of, tussock grassland.] *N.Z. J. Agric.* 83: 445.

**SAXBY, S. H.**

- 1956 Pasture production in New Zealand. *N.Z. Dep. Agric. Bull.* 250. 3rd ed. 203 pp.  
pp. 38–41, 70, 73–81, 110–11, 131–6 deal with tussock grasses and grasslands.
- 1957 Central Otago – a changing grassland scene. *N.Z. J. Agric.* 95: 238–9, 241, 243.

**SAXBY, S. H. and FAITHFUL, W.**

- 1952 Developing ploughable tussock grassland in Southland. *N.Z. J. Agric.* 85: 46–7, 49, 51, 53.

**SCHERP, E.**

See McGregor, J. N., *et al.*

**SCHOFIELD, R. C.**

- 1954 Scrub weeds of Central Otago. *Proc. N.Z. Weed Control Conf.* 7: 86–8.

**SCOTT-THOMSON, J.**

See Thomson, J. S.

**SEWELL, T. G.**

- 1947 A study of montane tussock grassland with special reference to the growth, seeding, and behaviour of the principal tussocks and grasses. 69 pp. + Apps. (Thesis deposited in Canterbury Agricultural College Library.)
- 1948 Burning of montane tussock grassland. *N.Z. J. Agric.* 77: 263, 265–9.
- 1950 Improvement of tussock grassland. *N.Z. J. Agric.* 81: 293, 295, 297, 299.
- 1952A Tussock grassland investigations. *Proc. Conf. N.Z. Grassl. Assoc.* 14: 123–32.  
Discussion pp. 133–7.
- 1952B Chemical control of sweet briar. *Proc. N.Z. Weed Control Conf.* 5: 55–7.

**SIEVWRIGHT, H. M.**

- 1955 Survey of aerial topdressed tussock land in South Canterbury. *N.Z. J. Agric.* 90: 305–6.
- 1956 Improving fescue tussock grassland in the MacKenzie country. *N.Z. J. Agric.* 92: 122–3, 125, 127.
- 1957 Aerial farming in the South Island. II. Some aspects of aerial topdressing and seeding in the tussock country from the Waitaki to the Rakaia rivers. *Proc. Linc. Coll. Farm. Conf.* 7: 70–7.  
Discussion pp. 77–9.

**SIMPSON, G. and THOMSON, J. S.**

- 1926 Results of a brief botanical excursion to Rough Peaks range. *N.Z. J. Sci. Tech.* 8: 372-8.  
1938 The Dunedin sub-district of the South Otago botanical district. *Trans. roy. Soc. N.Z.* 67: 430-42.

**SIMPSON, G.**

See also Cockayne, L., Simpson, G., and Thomson, J. S.

**SIMPSON, M.**

- 1952 Value of the awn in establishing seed of *Danthonia penicillata* (Labill.) Palisot. *N.Z. J. Sci. Tech. A* 34: 360-4.  
Used in regrassing.

**SIMPSON, M. J. A.**

- 1957 Seedling studies in fescue-tussock grassland. II. Performance in four sites. *N.Z. J. Sci. Tech. A* 38: 512-26.  
At Molesworth.

**SIMPSON, M. J. A. and MOORE, L. B.**

- 1955 Seedling studies in fescue-tussock grassland. I. Some effects of shading, cultivation, and frost. *N.Z. J. Sci. Tech. A* 37: 93-9.

**SLEDGE, W. A.**

See Cockayne L., and Sledge, W. A.

**SMITH, J. C.**

- 1913 List of phanerogamic plants indigenous to the Southland district. *Trans. N.Z. Inst.* 46: 220-46.

**SPECIAL COMMITTEE REPORT**

- 1923 The regrassing experiments in Central Otago. *N.Z. J. Agric.* 26: 97-100.

**SPEIGHT, R., COCKAYNE, L., and LAING, R. M.**

- 1910 The Mount Arrowsmith district: a study in physiography and plant ecology. *Trans. N.Z. Inst.* 43: 315-78.

Part II.—Plant ecology, by Cockayne and Laing. incl. pp. 347-52. Steppe - climate formations.

**STEVENSON, G.**

- 1950 The development of low-country tussock grassland. *Proc. Conf. N.Z. Grassl. Assoc.* 12: 64-9.

**STOCKDILL, S. M. J.**

- 1957   Oversowing tussock country. *N.Z. J. Agric.* 94: 577.  
With clover, super, and molybdenum.

**STOUT, J. D.**

See Thornton, R. H., Stout, J. D., and di Menna, M.

**SYMONS, J.**

- 1956   Developing tussock grassland in Waimate county with topdressing and oversowing. *N.Z. J. Agric.* 92: 486-7, 489, 491.

**SYMONS, J. L.**

- 1953   Improvement of low tussock country. *N.Z. J. Agric.* 86: 55.  
Note on establishing clover in Waimate district.

**TAYLOR, M.**

- 1914   Renewal of southern hill pastures. *J. Agric.* [N.Z.] 8: 169.

**TEICHELMANN, E.**

See Cockayne, L., and Teichelmann, E.

**TENNENT, R. B.**

- 1935   A summary of the Northburn regrassing experiments conducted by the late Dr L. Cockayne. *Papers read. Conf. N.Z. Grassl. Assoc.* 4. Paper 1. 12 pp.

**THOMSON, J. S.**

- 1935   Some aspects of the vegetation and flora of South Island. *J. N.Z. Inst. Hort.* 4 (4): 1-18.  
Banks lecture 1935.

**THOMSON, J. S. and SIMPSON, G.**

- 1940   Growth-rates of certain indigenous species of cushion-plants. *Trans. roy. Soc. N.Z.* 70: 25-6.

**THOMSON, J. S.**

See also Cockayne, L., Simpson, G., and Thomson, J. S., and Simpson, G., and Thomson, J. S.

**THOMSON, J. T.**

- 1859A Report to the Commissioners of the waste land board on the reconnaissance survey of the southern districts of Otago, executed during the months of January, February, and March 1857. *Otago Prov. Govt. Gazette* 3: 256-69.

**THOMSON, J. T.**

- 1859B Report to the Commissioners of the waste land board, on the reconnaissance of the north-eastern and interior districts of the province of Otago, executed during the months of October, November, December, and January 1857-8. *Otago Prov. Govt. Gazette* 3: 270-5.

**THORNTON, F. H.**

- 1954 Recent research work; tussock grassland. *N.Z. J. Agric.* 89: 65.

Notes on regrassing, spelling, and fertilisers.

**THORNTON, R. H., STOUT, J. D., and di MENNA, M.**

- 1955 Microbiology of tussock grassland soils. *Proc. N.Z. ecol. Soc.* 3: 10-12.

General Discussion pp. 17-20.

**TURNER, E. P.**

- 1909 Report on a botanical examination of the higher Waimarino district. *App. J. House Reps. N.Z.* 1909 C. 11. 14 pp. + map.

**TURNER, H. T.**

- 1913 [Note on spelling.] *J. Agric. [N.Z.]* 7: 310.

**TUSSOCK GRASSLAND RESEARCH COMMITTEE**

- 1954 The high-altitude snow-tussock grassland in South Island, New Zealand. *N.Z. J. Sci. Tech. A* 36: 335-64.

Includes Appendix I. Tall-tussock Danthonias of New Zealand pp. 357-9 and Appendix III High country land tenures by B. E. Ussher. pp. 360-3. (Fig. 3 p. 338 incorrect and reissued; reprint shows corrected map.)

**USSHHER, B. E.**

See Tussock grassland research committee.

**VANT WOUDT, B. D.**

- 1951 Animal influence on forest and high country soils. 3. Damage by deer in the Northern Kaimanawas. *N.Z. Sci. Rev.* 9: 150-2.

**WALKER, T. W., ADAMS, A. F. R., and ORCHISTON, H. D.**

- 1955 The effects and interactions of sulphur, phosphorus, and molybdenum on the growth and composition of clovers. *N.Z. J. Sci. Tech. A* 36: 470-82.

Also issued as *Linc. Coll. Res. Pub. No. 28.*

**WALL, A.**

- 1923A The indigenous grasses of Mount Herbert, Banks Peninsula, and its neighbourhood. *N.Z. J. Sci. Tech.* 6: 144-7.
- 1923B *Raoulia mammillaris* Hook F. (*Psychrophyton mamillare*, Beauv) a correction. *Rec. Canterbury Mus.* 2: 105-9 + Pl. 21.
- 1925 The flora of Mount Cook. Christchurch. *Lyttelton Times*. 55 pp.
- 1927 Alpine and subalpine flora. In Philosophical Institute of Canterbury. Natural history of Canterbury. Christchurch, Simpson & Williams. pp. 145-59.
- 1930 Appendix on the plant-covering of [Lake Ellesmere] spit. *Trans. N.Z. Inst.* 61: 168-9.
- 1953 The botany of Christchurch. 2nd ed. Wgtn. Reed. 62 pp. (1st ed. 1922.)  
Incl. native grasses on Port Hills and Mts. Herbert and Grey.

**WARD, F. E.**

- 1923 Regrassing experiments on Canterbury back-country. *N.Z. J. Agric.* 26: 358-62.

**WARDLE, P.**

- 1954 An ecological study in the hill country north of Dunedin. 127 pp. (Thesis deposited in University of Otago Library.)
- 1956 Botanical survey of Upper Shotover catchment. In *Otago Catchment Board. Bull.* 1. Shotover river survey. pp. 24-37.

**WARDLE, P. and MARK, A. F.**

- 1956 Vegetation and climate in the Dunedin district. *Trans. roy. Soc. N.Z.* 84: 33-44.

**WARNER, A. O.**

- 1956 Rabbit destruction in Central Otago. *N.Z. Meat Wool Bd. Econ. Serv. Bull.* 2. 25 pp.

**WENDELKEN, W. J.**

- 1956 Trials with exotic tree species in high country. *N.Z. J. For.* 7 (3): 76-86.

**WHALAN, W. J.**

See McGregor, J. N., *et al.*

**WILKIE, D. R.**

- 1949 Pasture regeneration: Wither Hills. *Proc. Conf. N.Z. Grassl. Assoc.* 11: 72-80.  
1952 Restoration of hill country by conservation farming. *N.Z. Soil Conserv. Rivers Control Coun. Bull.* 8. 39 pp.

**WILLIAMS, R. M.**

- 1956 Variance of the mean of systematic samples. *Bio-metrika* 43: 137-48.  
Transects in the Waimakariri catchment area.

**WILSON, R. K.**

- 1949 The MacKenzie basin; a regional study in the South Island high country. 75 + 2 pp. (Thesis deposited in University of Canterbury Library.)

**WILTON, H.**

- 1948 A critical study of comparative methods of botanical analysis of pastures with special reference to their mathematical reliability; the application of these methods to selected grassland associations in New Zealand. 83 pp. + illus., diagrs. and tabs. (Thesis deposited in Victoria University of Wellington Library.)  
Deals with high producing, and [low] tussock grasslands. For the latter analysis was made at 4 locations near Cass to study the effects of spelling.

**WOODCOCK, J. W.**

- 1955 The menace of Nassella tussock. *N.Z. J. Agric.* 91: 241-3.

**ZOTOV, V. D.**

- 1938A Some correlations between vegetation and climate in New Zealand. *N.Z. J. Sci. Tech.* 19: 474-87.  
Mainly deals with the vegetation and timber line in the Tararuas.  
1938B Survey of the tussock-grasslands of the South Island, New Zealand; preliminary report. *N.Z. J. Sci. Tech.* A 20: 212-44.  
Also issued in 1939 as *N.Z. Dep. sci. industr. Res. Bull.* 73.  
1940 Certain types of soil erosion and resultant relief features on the higher mountains of New Zealand. *N.Z. J. Sci. Tech. B* 21: 256-62.  
Vegetation of Kaimanawa Mountains.

**ZOTOV, V. D.**

- 1943 Certain changes in the nomenclature of New Zealand species of Gramineae. *Trans. roy. Soc. N.Z.* 73: 233-8.  
Covers *Danthonia*, *Poa*, etc.
- 1945 Taxonomy of the genus *Danthonia* in N.Z. (Thesis, no location known.)

**ZOTOV, V. D., ELDER, N. L., and BEDDIE, A. D.**

- 1938 An outline of the vegetation and flora of the Tararua mountains. *Trans. roy. Soc. N.Z.* 68: 259-324.

**ZOTOV, V. D.**

See also Poole, A. L., Mason, R., Oliver, W. R. B., and Zotov, V. D.

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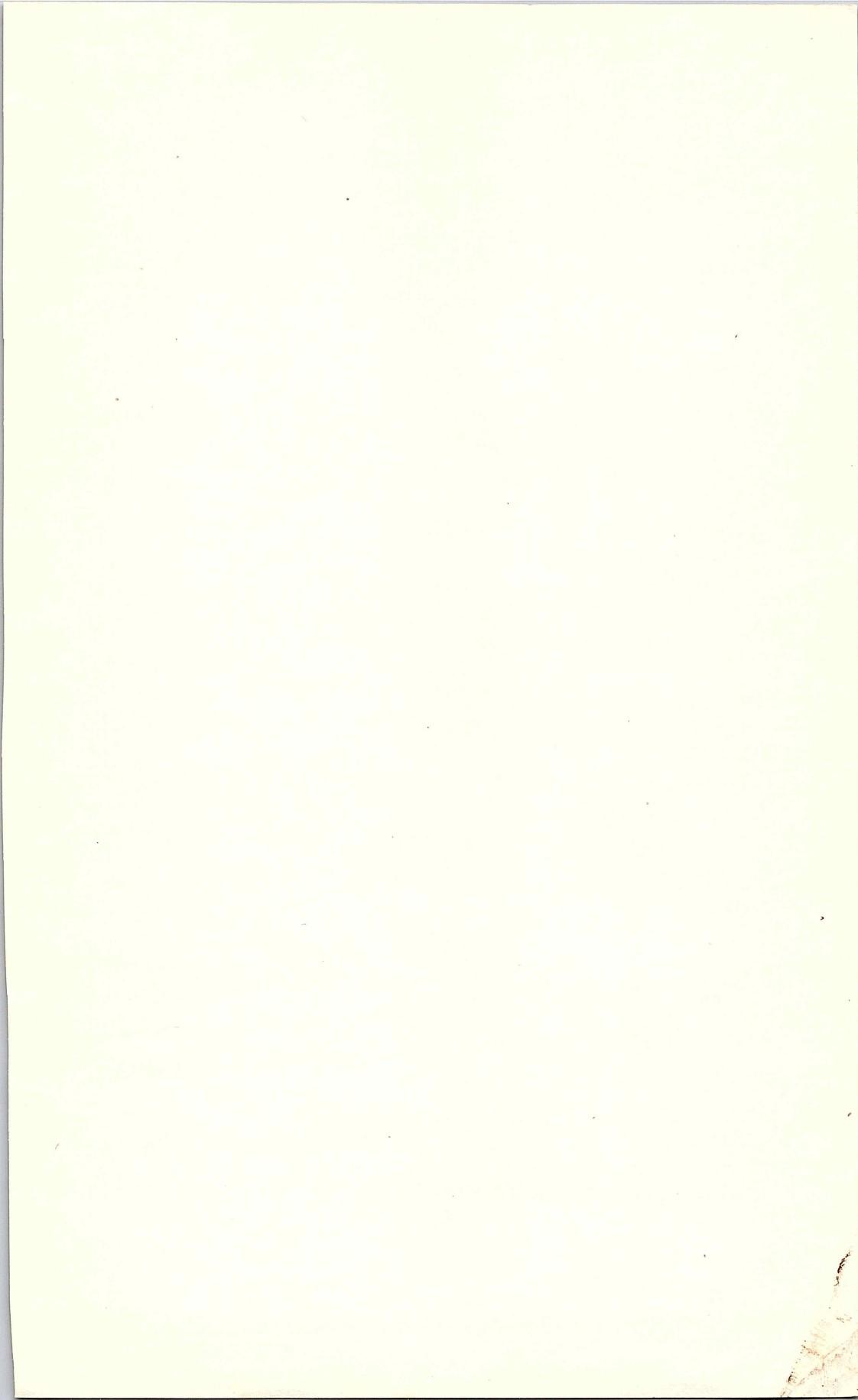
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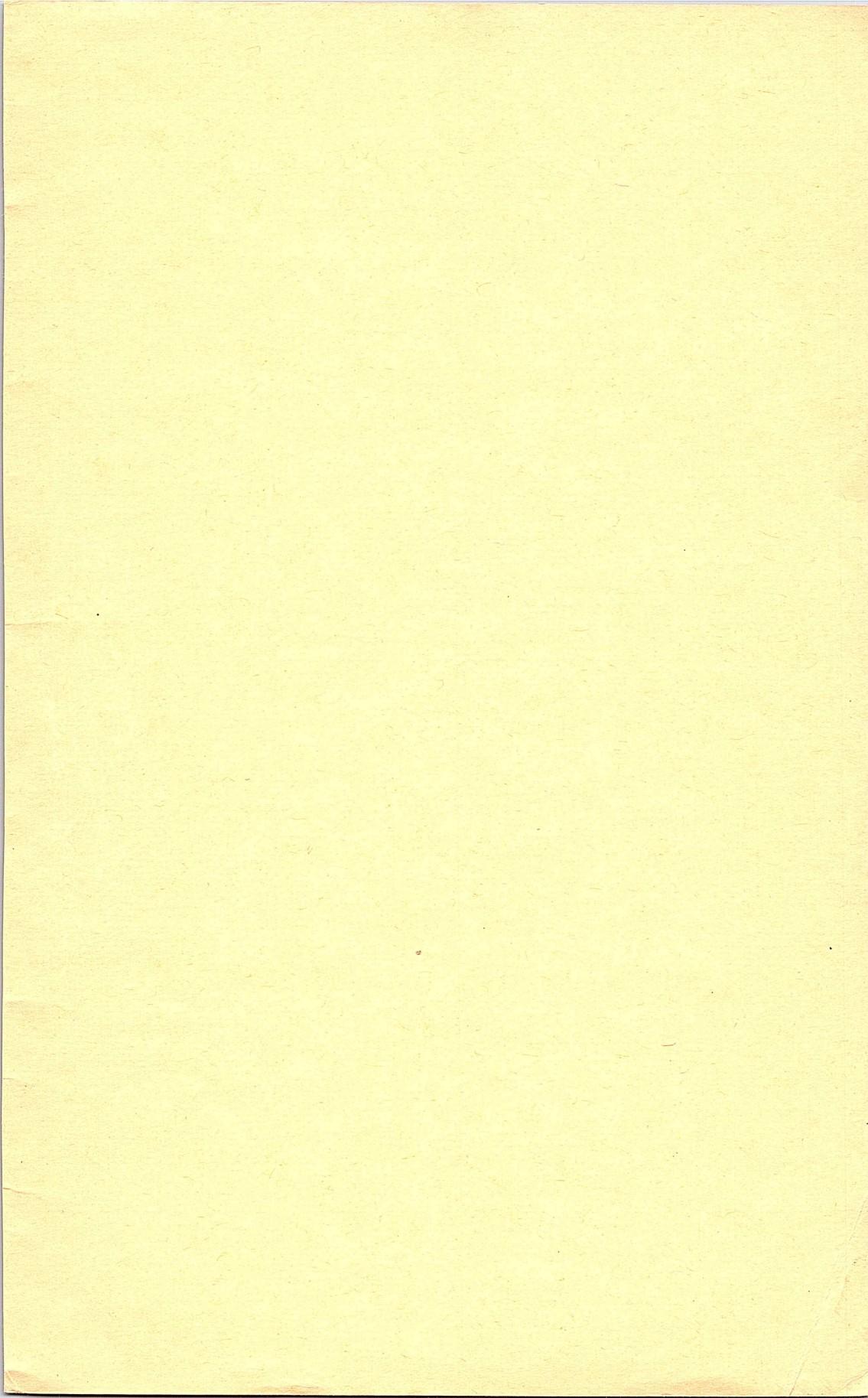
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